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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/854,968	05/14/2001	Jan Raa	CU-2535 WDD	9869

26530 7590 04/09/2003

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EXAMINER	
MOHAMED, ABDEL A	

ART UNIT	PAPER NUMBER
1653	8

DATE MAILED: 04/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/854,968	Applicant(s) RAA ET AL	
	Examiner Abdel A. Mohamed	Art Unit 1653	

-- The MAILING DATE of this communication appears on the cover sh et with the correspondence address --

Peri d for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 January 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9,17 and 22-32* is/are pending in the application.

4a) Of the above claim(s) *9 and 22-32* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

ACKNOWLEDGMENT OF THE AMENDMENT, REMARKS AND STATUS OF THE CLAIMS

1. The amendment and remarks filed 1/27/03 are acknowledged, entered and considered. In view of Applicant's request claims 18-21 have been canceled and claim 7 has been amended. Thus, claims 9, 17 and 22-32 are now pending in the application of which claims 9 and 22-32 are withdrawn as non-elected invention without traverse (See e.g., Paper No. 4) and the Office action is directed to the merits of claim 17 as per elected invention. Applicant is requested to cancel the non-elected claims without traverse on the next communication. The rejection under 35 U.S.C. 112, second paragraph is withdrawn in view of Applicant's amendment, remarks and cancellation of claims filed 1/27/03. However, the rejections under 35 U.S.C. 102(b) and 35 U.S.C. 103(a) over the prior art of record are maintained.

2. It is noted that Applicant has amended claim 17 by incorporating the limitations recited in canceled claims 18-21. Thus, issues and/or limitations of claims 18-21 which are incorporated in amended claim 17 and have been argued by Applicant are essentially maintained for the same reasons discussed in the previous Office action mailed on 6/25/02 (Paper No. 5) as applicable to amended claim 17 and as reiterated below:

CLAIMS REJECTION-35 U.S.C. § 102(b)

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 17 remains rejected under 35 U.S.C. 102(b) as being anticipated by Fujimaki et al. (U.S. Patent No. 4,016,147).

The instantly claimed invention as amended in claim 17 is directed to a bioactive peptide composition consisting of a mixture of peptides having an aromatic amino acid in the N-terminal position, selected from the group consisting of tyrosine, phenylanaline and arginine, produced by enzymatic hydrolysis of a protein source preferably from fish at pH in the range of 1-6 with pepsin obtained from fish, preferably from the stomach of Atlantic cod as the hydrolytic enzyme, said bioactive peptide composition consisting of less than 100 amino acid units and having a molecular weight below 10,000 kd.

Similarly, the reference of Fujimaki et al. discloses a bioactive composition produced by hydrolysis of a protein source at a controlled acidic pH with pepsin from fish as the hydrolytic enzyme. The prior art shows that peptide composition contains a mixture of peptides which have aromatic acids in the N-terminal portion, wherein the aromatic acids are for example, phenylalanine and tyrosine produced by enzymatic hydrolysis of a protein source, for example,

fish protein at pH of about 1.5 with pepsin having molecular weight of less than 10,000, for example 800 to 2,000 (See e.g. Figure 3, cols. 2-4 and claims 13-14 and 16).

With respect to independent claim 17, the claim is in product-by-process format, and as such, it is the novelty and patentability of the instantly claimed product that need be established and not the recited process steps. In re Brown, 173 USPQ (CCPA 1972); In re Wertheim, 191 USPQ (CCPA 1976). Thus, the prior art anticipates a process for making a product obtained through enzymatic hydrolysis of a protein source with pepsin enzyme derived from a fish protein, and as such, anticipates claim 17 as drafted.

4. Claim 17 remains rejected under 35 U.S.C. 102(b) as being anticipated by Yamashita et al (Journal of Food Science, Vol. 41, No. 5, pp. 1029-1032, 1976).

The reference of Yamashita et al. discloses a bioactive composition produced by hydrolysis of a protein source at a controlled acidic pH with pepsin from fish as the hydrolytic enzyme. The prior art shows that peptide composition contains a mixture of peptides which have aromatic acids in the N-terminal portion, wherein the aromatic acids are for example, phenylalanine and tyrosine produced by enzymatic hydrolysis of a protein source, for example, fish protein at pH of about 1.5 with pepsin having molecular weight of less than 10,000, for example lower molecular weight of 500 (See e.g. the entire document and especially pages 1029 and 1032).

With respect to independent claim 17, the claim is in product-by-process format, and as such, it is the novelty and patentability of the instantly claimed product that need be established and not the recited process steps. In re Brown, 173 USPQ (CCPA 1972); In re Wertheim, 191 USPQ (CCPA 1976). Thus, the prior art anticipates a process for making a product obtained through enzymatic hydrolysis of a protein source with pepsin enzyme derived from a fish protein, and as such, anticipates claim 17 as drafted.

CLAIMS REJECTION-35 U.S.C. § 103(a)

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claim 17 remains rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimaki et al. (U.S. Patent No. 4,016,147) or Yamashita et al (Journal of Food Science, Vol. 41, No. 5, pp. 1029-1032, 1976) taken with Gildberg et al. (Comp. Biochem. Physiol., Vol. 114B, No. 1, pp. 97-101, 1996).

The prior art of Fujimaki et al. or Yamashita et al. as discussed above under the rejection of 35 U.S.C. 102(b) each discloses a bioactive composition produced by hydrolysis of a protein source at a controlled acidic pH with pepsin from fish as the hydrolytic enzyme.

Fujimaki et al. or Yamashita et al. each differs from claim 17 in failing to teach the use of enzymatic hydrolysis of a fish protein source with pepsin enzyme derived from the stomach of Atlantic cod, however, Gildberg et al. teach the isolation of acid peptide fractions from a fish protein hydrolysate derived from the stomach of Atlantic cod (*Gadus morhua*) in which the isolated or separated acid peptide fractions were used *in vitro* stimulatory experiments with head kidney leukocytes from Atlantic salmon (*Salmo salar*). See e.g., abstract, material and methods and Figure 3. On page 98, the reference clearly discloses the process of treating a fish protein source with an acid such as HCl acid at pH 2-3, and for a time sufficient to effect bioactive peptide formation. On page 99, left column, last paragraph and on Table I, the reference shows that all the fractions contain peptides with high levels of acid amino acids and aromatic amino acids such as tyrosine and phenylalanine. Thus, the reference teaches the use of the proteolytic enzyme derived from the stomach of Atlantic cod in the hydrolyzing of the fish protein at a

controlled pH and a process for the production of bioactive peptide compositions having aromatic amino acids at the N-terminal position.

Thus, such features are known or suggested in the art, as seen in the secondary reference of Gildberg et al., and including such features into the methods of the primary references of Fujimaki et al. or Yamashita et al., which teach the use of such pepsin in the process of enzymatic hydrolysis of fish protein, so as to provide a product which is bioactive, would have been obvious to one of ordinary skill in the art to obtain the known and recognized functions and advantages thereof.

With respect to independent claim 17, the claim is in product-by-process format and as such, it is the novelty and patentability of the instantly claimed product that need be established and not the recited process steps. In re Brown, 173 USPQ 685 (CCPA 1972); In re Wertheim, 191 USPQ (CCPA 1976). Further, the prior art described the product as old, In re Best, 195 USPQ 430, 433 (CCPA 1977); (See MPEP 706.03 [e]). Hence, the burden of proving that the process limitation makes a different product is shifted to the Applicants, In re Fitzgerald, 205 USPQ 594.

In regard to the limitations recited in the claims such as the size of amino acid units; ranges of pHs, and molecular weights; it is conventional and within the ordinary skill of the art to which this invention pertains to select the appropriate amino acid units, ranges of pHs, and molecular weights. Although, the prior art does not disclose the specific amino acid units, and the specific pH ranges and molecular weights for carrying enzyme hydrolysis as claimed.

Nevertheless, the amino acid units and the ranges of pH and molecular weight disclosed by the prior art and claimed by Applicant overlap in scope, and as such, it is conventional and within the ordinary skill of the art to optimize or select the specific amino acid units, pHs, and molecular weights from ranges disclosed. See Ex parte Lee, 31 USPQ2d 1105 (Bd. Pat. App. & Inter. 1993); also, See MPEP 2131.03. Therefore, in view of the above, and in view of the combined teachings of the prior art; one of ordinary skill in the art would have been motivated at the time the invention was made to use the already known process for making a product obtained through enzymatic hydrolysis of a protein source such as fish with pepsin enzyme derived from the stomach of Atlantic cod and recover a peptide product which is bioactive, absent of sufficient objective factual evidence or unexpected results to the contrary.

ARGUMENTS ARE NOT PERSUASIVE

6. The rejection of claim 17 under 35 U.S.C. 102(b) as being anticipated by Fujimaki et al. (U.S. Patent No. 4,016,147).

Applicant's arguments filed 1/27/03 have been fully considered but they are not persuasive. Applicant's arguments that the '147 patent of Fujimaki et al. is directed towards the preparation of low phenylalanine plasteins, and certain synthetic protein-like substances. Further, enzymes from the stomach of Atlantic cod fish are not shown to be hydrolytic enzymes in the process of the Fujimaki et al. Reference is noted. The reference does not disclose and/or show the intended use of the stomach of Atlantic cod fish to be hydrolytic enzymes as argued by

Applicant. Nevertheless, a statement of usefulness or contemplated use of a claimed compound or composition in a claim is usually given little weight in distinguishing over the prior art. *In re Maeder et al.* (CCPA 1964) 337 F2d 875, 143 USPQ 248; *In re Riden et al.* (CCPA 1963) 318 F2d 761, 138 USPQ 112; *In re Sinex* (CCPA 1962) 309 F2d 488, 135 USPQ 302. Further, it is well established that the intended use of a compound (e.g., a polypeptide or a protein or a glycoprotein) does not impart patentability to the compound. *In re spada,* 911 F.2d 705, 15 USPQ2d 1655 (Fed. Cir. 1990) (The discovery of a new property or use of a previously known composition, even when that property and use are unobvious from the prior art, can not impart patentability to claims to the known composition); *In re Pearson*, 494 F.2d 1399, 1403, 181 USPQ 641, 644 (CCPA 1974) (intended use of an old composition does not render composition claims patentable); *In re Zierden*, 411 F.2d 1325, 1328, 162 USPQ 102, 104 (CCPA 1969). Thus, in the absence of evidence to the contrary or specific structural limitations, the claimed composition/product disclosed by the reference anticipates claim 17 as drafted.

7. The rejection of claim 17 under 35 U.S.C. 102(b) as being anticipated by Yamashita et al (Journal of Food Science, Vol. 41, No. 5, pp. 1029-1032, 1976).

Applicant's argument that amended claim 17 requires the use of pepsin obtained from the stomach of Atlantic cod is noted. The reference of Yamashita et al. does not disclose and/or show the requirement and/or intended use of the stomach of Atlantic cod fish as argued by Applicant. Nevertheless, a statement of usefulness or contemplated use of a claimed compound

or composition in a claim is usually given little weight in distinguishing over the prior art. *In re Maeder et al.* (CCPA 1964) 337 F2d 875, 143 USPQ 248; *In re Riden et al.* (CCPA 1963) 318 F2d 761, 138 USPQ 112; *In re Sinex* (CCPA 1962) 309 F2d 488, 135 USPQ 302. Further, it is well established that the intended use of a compound (e.g., a polypeptide or a protein or a glycoprotein) does not impart patentability to the compound. *In re spada,* 911 F.2d 705, 15 USPQ2d 1655 (Fed. Cir. 1990) (The discovery of a new property or use of a previously known composition, even when that property and use are unobvious from the prior art, can not impart patentability to claims to the known composition); *In re Pearson*, 494 F.2d 1399, 1403, 181 USPQ 641, 644 (CCPA 1974) (intended use of an old composition does not render composition claims patentable); *In re Zierden*, 411 F.2d 1325, 1328, 162 USPQ 102, 104 (CCPA 1969). Thus, in the absence of evidence to the contrary or specific structural limitations, the claimed composition/product disclosed by the reference anticipates claim 17 as drafted.

8. The rejection of claim 17 under 35 U.S.C. 103(a) as being unpatentable over Fujimaki et al. (U.S. Patent No. 4,016,147) or Yamashita et al (Journal of Food Science, Vol. 41, No. 5, pp. 1029-1032, 1976) taken with Gildberg et al. (Comp. Biochem. Physiol., Vol. 114B, No. 1, pp. 97-101, 1996).

Applicant's arguments that the Gildberg et al. reference does not describe any process or condition for making the claimed bioactive peptide composition. Clearly, there is no indication that a secondary reference, the Gildberg et al. reference, can be added to the teachings of the

Fujimaki et al. reference and the Yamashita et al. reference to correct the improper combination of those teachings. One skilled in the art would not read the references and combine their teachings to arrive at Applicant's claimed invention. The suggestion to combine the teachings of the references is not present from an individual reading of each reference. Therefore, the references taken singly or in combination, do not suggest the present invention is not persuasive.

Contrary to Applicant's arguments, the primary reference of Fujimaki et al. discloses a bioactive composition produced by hydrolysis of a protein source at a controlled acidic pH with pepsin from fish as the hydrolytic enzyme. The prior art shows that peptide composition contains a mixture of peptides which have aromatic acids in the N-terminal portion, wherein the aromatic acids are for example, phenylalanine and tyrosine produced by enzymatic hydrolysis of a protein source, for example, fish protein at pH of about 1.5 with pepsin having molecular weight of less than 10,000, for example 800 to 2,000 (See e.g. Figure 3, cols. 2-4 and claims 13-14 and 16).

Similarly, the primary reference of Yamashita et al. discloses a bioactive composition produced by hydrolysis of a protein source at a controlled acidic pH with pepsin from fish as the hydrolytic enzyme. The prior art shows that peptide composition contains a mixture of peptides which have aromatic acids in the N-terminal portion, wherein the aromatic acids are for example, phenylalanine and tyrosine produced by enzymatic hydrolysis of a protein source, for example, fish protein at pH of about 1.5 with pepsin having molecular weight of less than 10,000, for example lower molecular weight of 500 (See e.g. the entire document and especially pages 1029 and 1032).

The secondary reference of Gildberg et al. teach the isolation of acid peptide fractions from a fish protein hydrolysate derived from the stomach of Atlantic cod (*Gadus morhua*) in which the isolated or separated acid peptide fractions were used *in vitro* stimulatory experiments with head kidney leukocytes from Atlantic salmon (*Salmo salar*). Visual inspection and pictures of peptides stimulated cells showed strongly enhanced vacuolization and formation of long stretched out pseudopodes after 7 days of incubation. Acid peptide fractions from fish protein hydrolysate may be useful as adjuvant in fish vaccine and as an immune stimulant in fish feed. The reference also discloses the process of treating a fish protein source with an acid such as HCl acid at pH 2-3, a temperature of about 10^0C and for a time sufficient to effect bioactive peptide formation. Further, the reference shows that all the fractions contain peptides with high levels of acid amino acids and aromatic amino acids such as tyrosine and phenylalanine. Thus, the secondary reference clearly teaches the use of the proteolytic enzyme derived from the stomach of Atlantic cod in the hydrolyzing of the fish protein at a controlled temperature and pH and a process for the production of bioactive peptide compositions having aromatic amino acids at the N-terminal position. Thus, such features are known or suggested in the art, as seen in the secondary reference of Gildberg et al., and including such features into the compositions of the primary references of Fujimaki et al. or Yamashita et al., would have been obvious to one of ordinary skill in the art to obtain the known and recognized functions and advantages thereof. Thus, in view of the above, and in view of the combined teachings of the prior art; one of ordinary skill in the art would have been motivated at the time the invention was made to use the

already known process for making a product obtained through enzymatic hydrolysis of a protein source such as fish with pepsin enzyme derived from the stomach of Atlantic cod and recover a peptide product which is bioactive.

Therefore, the combined teachings of the prior art clearly teach the process for production of bioactive peptide composition comprising of a mixture of peptides having an aromatic amino acid in the N-terminal position, selected from the group consisting of tyrosine, phenylanaline and arginine, produced by enzymatic hydrolysis of a protein source preferably from fish at pH in the range of 1-6 with pepsin obtained from fish, preferably from the stomach of Atlantic cod as the hydrolytic enzyme, said bioactive peptide composition consisting of less than 100 amino acid units and having a molecular weight below 10,000 kd in the manner claimed in claim 17. Thus, it is made obvious by the combined teachings of the prior art since the instantly claimed invention which falls within the scope of the prior art teachings would have been obvious because as held in host of cases including *Ex parte Harris*, 748 O.G. 586; *In re Rosselete*, 146 USPQ 183; *In re Burgess*, 149 USPQ 355 and as exemplified by *In re Betz*, "the test of obviousness is not express suggestion of the claimed invention in any and all of the references but rather what the references taken collectively would suggest to those of ordinary skill in the art presumed to be familiar with them".

ACTION IS FINAL, NECESSITATED BY AMENDMENT

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

CONCLUSION AND FUTURE CORRESPONDENCE

10. Claim 17 is rejected and claims 9 and 22-32 are withdrawn as non-elected invention..

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdel A. Mohamed whose telephone number is (703) 308-3966. The examiner can normally be reached on Monday through Friday from 7:30 a.m. to 5:00 p.m. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Low, can be reached on (703) 308-2923. The fax phone number for this Group is (703) 308-4242.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Mohamed/AAM

April 4, 2003

CHRISTOPHER S. F. LOW
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